

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Henrik E. Hedlund

Confirmation No.: 3703

Application No.: 10/633,357

Group No.: 3623

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Examiner: Pats, Justin

For: SYSTEM AND METHOD FOR DYNAMIC SCHEDULING OF PERSONNEL

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Commissioner for Patents

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APPEAL BRIEF

Introductory Comments

Pursuant to the provisions of 37 C.F.R. § 41.30 *et seq.*, the Appellant hereby appeals to the Board of Patent Appeals and Interferences (hereinafter "the Board") from the claim rejections issued in the final Office action dated April 7, 2009 (hereinafter "the final Office action"). A notice of appeal was filed on August 7, 2009.

Real Party In Interest

The real party in interest is the Assignee of the present application, Verint Americas, Inc.

Related Appeals and Interferences

There are no prior or pending related appeals or interferences.

Status of Claims

Claims 1, 3-22, and 25-34 are pending in the application.

Claims 1, 3-22, and 25-34 have been finally rejected.

Claims 1, 3-22, and 25-34 are being appealed.

Claims 2, 23, and 24 have been canceled.

Status of Amendments

An amendment to claim 1 was filed subsequent to the final Office action and was entered by the Examiner for purposes of appeal. The amendment to claim 1 resulted in overcoming the rejection of claims 1 and 3-20 under 35 U.S.C. § 101.

Summary of Claimed Subject Matter

Independent claim 1 provides a computer implemented method for automatically generating an optimized workforce schedule. (See, generally, Fig. 2; and paragraphs 8 and 33-36). The method comprises, in a scheduling server, processing past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, wherein the historical shift patterns comprise a resource dependent shift pattern, a time dependent shift pattern, and a ratio dependent shift pattern. (Fig. 2; and paragraphs 8 and 34-35). The method further comprises, in the scheduling server, creating an initial workforce schedule based on the historical shift patterns and employee attributes, and refining the initial workforce schedule to generate an optimized workforce schedule based on the initial workforce schedule, forecasted demand, and employee preferences. (Fig. 2; and paragraphs 8 and 36).

Independent claim 21 provides a system for automatically generating an optimized workforce schedule. (See, generally, Fig. 1 and 2; and paragraphs 8 and 33-36). The system comprises a scheduling server, an access device, and a data storage area. (Fig. 1; and paragraphs 26-30). The access device is communicatively coupled with the scheduling server over a data communications network, the access device configured to allow a user to interact with the scheduling server. (Fig. 1 and 1A; and paragraphs 26 and 30). The data storage area is configured to store past schedules, forecasted demand, and employee attributes. (Fig. 1A; and paragraphs 8, 32, and 34). The scheduling server is configured to process past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, wherein the historical shift patterns comprise a resource dependent shift pattern, a time dependent shift pattern, and a ratio dependent shift pattern. (Fig. 3; and paragraphs 8 and 33-34). The scheduling server is further configured to create an initial workforce schedule based on the historical shift patterns, forecasted demand, and employee attributes. (Fig. 2; and paragraphs 8 and 35-36). The scheduling server is further configured to create an optimized workforce schedule based on user input via the access device. (Fig. 2; and paragraphs 8 and 32).

Grounds of Rejection to Be Reviewed on Appeal

1. Whether claims 1, 3-14, 16, 19-22, 26-31, 33, and 34 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 5,111,391 to Fields et al. (hereinafter “Fields”) in view of U.S. Patent Application Publication No. 2002/0143597 A1 to Andre et al. (hereinafter “Andre”) further in view of a public use of Click2Staff software.
2. Whether claims 15, 17, and 32 are unpatentable under 35 U.S.C. § 103(a) over Fields in view of Andre, further in view of a public use of Click2Staff software, further in view of a public use of GMT Planet software.
3. Whether claim 18 is unpatentable under 35 U.S.C. § 103(a) over Fields in view of Andre, further in view of a public use of Click2Staff software, further in view of U.S. Patent No. 6,823,315 B1 to Bucci et al. (hereinafter “Bucci”).
4. Whether claim 25 is unpatentable under 35 U.S.C. § 103(a) over Fields in view of Andre, further in view of a public use of Click2Staff software, further in view of U.S. Patent No. 7,222,082 B1 to Adhikari et al. (hereinafter “Adhikari”).

Argument

I. Rejection of Claims 1, 3-14, 16, 19-22, 26-31, 33, and 34 Under 35 U.S.C. § 103(a)

Claims 1, 3-14, 16, 19-22, 26-31, 33, and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,111,391 (Fields) in view of U.S. Patent Application Publication No. 2002/0143597 A1 (Andre) further in view of a public use of Click2Staff software, as evidenced by *Employee Scheduling Becomes More Complex*, Credit Union Times, March 13, 2002, p. 1-4 (hereinafter “Employee Scheduling”); Berkofsky, *Banks to Start Embracing Workforce Technology*, Bank Systems & Technology, 2002, p. 1-3 (hereinafter “Berkofsky”); Norton-Miller, *GECU Saves Money With ASP Staffing Model*, microbanker.com, Feb 2003, p. 1-4 (hereinafter “Norton-Miller”); *Wells Using Traffic Prediction Software*, American Banker, Sept. 13, 2002, p. 1 (hereinafter “Wells”); and *Exametric’s Click2Staff to Optimize Workforce at First Hawaiian Back*, exametic.com, Nov. 11, 2002, p. 1-2 (hereinafter “Hawaiian Bank”). The Appellant respectfully traverses the rejection for at least the following reasons.

The final Office action admits that Fields in view of Andre does not explicitly teach processing past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, as recited in claim 1. (Page 6 of the final Office action). Instead, the final Office action asserts that Click2Staff software teaches these limitations. (Pages 6-8 of the final Office action). However, the Appellant respectfully asserts that, even if the Click2Staff software contained the attributes as discussed in the articles of record, Fields in view of Andre and Click2Staff software fails to teach or suggest at least these limitations of claim 1.

Processing Past Scheduling Using a Pattern Recognition Procedure

The final Office action asserts that art of record provides evidence that Click2Staff software possessed the feature of processing past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, as recited in claim 1. (Pages 6-7 of the final Office action). However, the Appellant respectfully asserts that none of the cited articles teach or suggest processing *past schedules* using a *pattern recognition procedure* to recognize

historical shift patterns for a *particular position* indicated in the past schedules, as recited in claim 1.

The advisory action dated 06/23/2009 (hereinafter “the advisory action”) asserts that “a pattern recognition procedure can be reasonably interpreted as any way of recognizing a representative sample of tendencies”. (Page 2 of the advisory action). However, the pattern recognition procedure recited in claim 1 does not apply to “a representative sample of tendencies.” On the contrary, claim 1 recites *processing past schedules* using a pattern recognition procedure. Thus, the pattern recognition procedure only applies to past schedules, and does not apply generally to any representative sample of tendencies as asserted in the advisory action.

The advisory action then asserts that “Click2Staff’s use of an algorithm to analyze historical bank data to discover customer traffic trends meets this definition because a Click2Staff’s algorithm uses a representative data sample, for example, *a year’s worth of bank transaction data* as evidenced by Norton-Miller, to recognize a tendency associated with that data”. (Page 2 of the advisory action, emphasis added). However, the use of bank transaction data to recognize a tendency associated with that data does not teach or suggest processing *past schedules* using a pattern recognition procedure. Transaction data relates to *bank customer* transactions, such as deposits, withdrawals, or balance inquiries, for example. In contrast, the term “schedule” refers to a *workforce*, such as the “optimized workforce schedule” recited in claim 1. Thus, analyzing a year’s worth of bank transaction data as taught by Norton-Miller does not teach or suggest processing past schedules using a pattern recognition procedure, as recited in claim 1.

The advisory action also asserts that “past schedules are processed by Click2Staff because Click2Staff analyses a file or list of past transaction data that is time-specific and includes such time-related data”. (Page 2 of the advisory action). As discussed above, analyzing past *transaction* data, even time-specific transaction data, does not teach or suggest processing *past schedules* using a pattern recognition procedure. In fact, none of the cited articles indicate that Click2Staff possessed the feature of processing *past schedules* using a pattern recognition procedure, as recited in claim 1. For example, the Hawaiian Bank reference states that “Click2Staff will analyze the *transaction volume* at each branch...and subsequently schedule staff”. (Hawaiian Bank, page 1, emphasis

added). Likewise, Norton-Miller merely discloses the “ability to accurately forecast the transactional information at a specific branch, by day/date, by specific type of transaction by the half-hour”. (Norton-Miller, page 2).

In contrast, claim 1 recites *processing past schedules* using a pattern recognition procedure to recognize *historical shift patterns for a particular position indicated in the past schedules*. The transactional analysis attributed to the Click2Staff software fails to teach or suggest recognizing historical shift patterns for a particular position indicated in the past schedules. The Click2Staff articles cited in the final Office action do not indicate that the past transaction data includes any information related to a historical *shift* pattern or a *particular position*. Thus, even assuming the past transaction data could be construed as past schedules, analyzing the past transaction data fails to teach or suggest recognizing *historical shift patterns for a particular position indicated in the past schedules*. Without containing information related to historical shift patterns for a particular position, the past transaction data cannot be analyzed to *recognize* historical shift patterns for a particular position indicated in the past schedules.

Therefore, the Click2Staff articles cited in the final Office action fail to teach or suggest that the Click2Staff software possessed the features of processing past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, as recited in claim 1, and such indication is respectfully requested.

Ratio Dependent Shift Pattern

The final Office action asserts that Berkofsky teaches a historical shift pattern comprising a ratio dependent shift pattern, as recited in claim 1. (Pages 7-8 of the final Office action). However, Berkofsky fails to attribute a ratio dependent shift pattern to Click2Staff software.

The final Office action asserts that a ratio dependent shift pattern is taught in Berkofsky when Click2Staff detects a shift in customer traffic from morning to afternoon hours before the manager does, enabling the manager to shift resources accordingly. (Page 7 of the final Office action). The final Office action then asserts that Berkofsky indicates that “Click2Staff software detected that morning hour positions required more

resources than afternoon hour positions; thus demonstrating a ratio of greater than 1 between morning and afternoon staffing". (Page 8 of the final Office action). The Appellant respectfully disagrees.

On the contrary, Berkofsky does not suggest that Click2Staff "detected that morning hour positions required more resources than afternoon hour positions"; if it had, Click2Staff would have scheduled the appropriate resources to handle the detected customer traffic, and the *manager* would not have needed to "shift resources accordingly". (Berkofsky, page 1). Instead, Berkofsky merely indicates that Click2Staff detected a shift in *customer* traffic, which does not teach or suggest a ratio dependent *shift* pattern associated with a *workforce* schedule.

Further, the final Office action assumes that a ratio of greater than 1 between morning and afternoon staffing would be required to handle the shift in customer traffic from afternoon to morning hours detected by Click2Staff, but this is not taught or suggested by Berkofsky. Instead, there are many solutions for responding to a shift in customer traffic from morning to afternoon hours which do not involve a ratio dependent shift pattern. For example, the increased customer traffic could be handled by scheduling more efficient workers who are able to handle more customer transactions at the time of higher customer traffic, and thus the ratio between morning and afternoon staffing could remain the same as prior to any rescheduling. Regardless, Berkofsky fails to demonstrate that Click2Staff software was able to *recognize a ratio dependent shift pattern*, as recited in claim 1.

Based on the above comments, neither Fields nor Andre nor Click2Staff software – separately or in combination – teach or suggest all of the limitations of independent claim 1. Claim 1 is therefore allowable over the art of record and such indication is respectfully requested.

Independent claim 21 contains limitations similar to those of claim 1 and is therefore allowable over Fields in view of Andre and Click2Staff software for at least the same reasons as discussed above for claim 1. Dependent claims 3-14, 16, 19, 20, 22, 26-31, 33, and 34, while separately allowable over the art of record, depend from otherwise allowable independent claims, thereby incorporating the provisions of their respective

independent claims. Therefore, the Appellant respectfully asserts that claims 3-14, 16, 19, 20, 22, 26-31, 33, and 34 are allowable for at least the reasons presented above in support of claims 1 and 21, and such indication is respectfully requested.

II. Rejection of Claims 15, 17, and 32 Under 35 U.S.C. § 103(a)

Claims 15, 17, and 32 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Fields in view of Andre and further in view of a public use of Click2Staff software, further in view of a public use of GMT Planet software, as evidenced by gmtcorp.com, GMTPlanet, 2001, retrieved from web.archive.org,
<http://web.archive.org/web/20010415113036/www.gmtcorp.com> (GMTcorp.com).
Claims 15 and 17 depend from independent claim 1, and claim 32 depends from independent claim 21, thereby incorporating the provisions of their respective independent claims. Therefore, the Appellant respectfully asserts that claims 15, 17, and 32 are allowable for at least the reasons presented above in support of claims 1 and 21, and such indication is respectfully requested.

III. Rejection of Claim 18 Under 35 U.S.C. § 103(a)

Claim 18 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Fields in view of Andre and further in view of a public use of Click2Staff software, further in view of U.S. Patent No. 6,823,315 B1 (Bucci). Claim 18 depends from independent claim 1, thereby incorporating the provisions of claim 1. Therefore, the Appellant respectfully asserts that claim 18 is allowable for at least the reasons presented above in support of claim 1, and such indication is respectfully requested.

IV. Rejection of Claim 25 Under 35 U.S.C. § 103(a)

Claim 25 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Fields in view of Andre and further in view of a public use of Click2Staff software, further in view of U.S. Patent No. 7,222,082 B1 (Adhikari). Claim 25 depends from independent claim 21, thereby incorporating the provisions of claim 21. Therefore, the Appellant respectfully asserts that claim 25 is allowable for at least the reasons presented above in support of claim 21, and such indication is respectfully requested.

Conclusion

In light of the foregoing remarks, the Appellant submits that the final rejection of claims 1, 3-22, and 25-34 is erroneous, and respectfully requests its reversal.

Included herewith is payment for the appropriate fee under 37 C.F.R. § 41.20(b)(2) for this appeal brief (37 C.F.R. §§ 41.37(a)(2)). The attendant notice of appeal and fee (37 C.F.R. §§ 41.61(a)(1) and 41.20(b)(1)) were filed previously on August 7, 2009. Also included herewith is payment for the appropriate fee under 37 C.F.R. § 1.17(a)(1) for a one-month extension of time (37 C.F.R. § 1.136(a)). The Appellant believes no additional fees are due with respect to this filing. However, should the Office determine that additional fees are necessary, the Office is hereby requested to contact the undersigned to arrange for payment of the applicable fees.

Respectfully submitted,

/Eric M. Collins/

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Claims Appendix

The following is a list of claims involved in this appeal:

1. (PREVIOUSLY PRESENTED) A computer implemented method for automatically generating an optimized workforce schedule, comprising:

in a scheduling server, processing past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, wherein the historical shift patterns comprise a resource dependent shift pattern, a time dependent shift pattern, and a ratio dependent shift pattern;

in the scheduling server, creating an initial workforce schedule based on the historical shift patterns and employee attributes; and

in the scheduling server, refining the initial workforce schedule to generate an optimized workforce schedule based on the initial workforce schedule, forecasted demand, and employee preferences.

2. (CANCELED)

3. (ORIGINAL) The method of claim 1, wherein employee attributes comprise an employee's skill set.

4. (ORIGINAL) The method of claim 1, wherein employee preferences comprise an employee's desired number of hours.

5. (ORIGINAL) The method of claim 1, wherein the refining step further comprises receiving a forecasted demand as input.

6. (ORIGINAL) The method of claim 5, wherein the forecasted demand is for a single employee position.

7. (ORIGINAL) The method of claim 5, wherein the forecasted demand is for multiple employee positions.

8. (ORIGINAL) The method of claim 1, wherein the refining step further comprises generating an optimized workforce schedule based on resource availability.
9. (ORIGINAL) The method of claim 1, wherein the refining step further comprises generating an optimized workforce schedule based on a predefined number of work hours per week for an employee.
10. (ORIGINAL) The method of claim 1, wherein the refining step further comprises generating an optimized workforce schedule based on full time and part time employee availability.
11. (ORIGINAL) The method of claim 1, further comprising receiving a modification to the optimized workforce schedule from a user.
12. (ORIGINAL) The method of claim 11, wherein the modification is received via an input device configured to provide changes for a particular resource through a user interface.
13. (ORIGINAL) The method of claim 12, wherein the input device is a mouse.
14. (ORIGINAL) The method of claim 12, wherein the input device is a keyboard.
15. (ORIGINAL) The method of claim 1, wherein the forecasted demand comprises multiple forecasts for a particular position.
16. (ORIGINAL) The method of claim 1, wherein the resources selected for the initial workforce schedule are predefined.
17. (ORIGINAL) The method of claim 1, wherein the resources selected for the initial workforce schedule are dynamically selected.

18. (ORIGINAL) The method of claim 1, wherein the refining step further comprises:
 - creating an alternative schedule;
 - comparing the alternative schedule to the initial schedule to determine the optimal schedule; and
 - using the optimal schedule as the optimized workforce schedule.
19. (ORIGINAL) The method of claim 1, wherein employee resources are located in a centralized pool of resources.
20. (ORIGINAL) The method of claim 1, further comprising generating a color coded report to illustrate how closely the optimized workforce schedule is meeting the forecasted demand for a given position.
21. (PREVIOUSLY PRESENTED) A system for automatically generating an optimized workforce schedule, comprising:
 - a scheduling server;
 - an access device communicatively coupled with the scheduling server over a data communications network, the access device configured to allow a user to interact with the scheduling server;
 - a data storage area configured to store past schedules, forecasted demand, and employee attributes;
 - the scheduling server configured to process past schedules using a pattern recognition procedure to recognize historical shift patterns for a particular position indicated in the past schedules, wherein the historical shift patterns comprise a resource dependent shift pattern, a time dependent shift pattern, and a ratio dependent shift pattern;
 - the scheduling server further configured to create an initial workforce schedule based on the historical shift patterns, forecasted demand, and employee attributes; and
 - the scheduling server further configured to create an optimized workforce schedule based on user input via the access device.

22. (ORIGINAL) The system of claim 21, wherein the access device and the scheduling server are at different locations.

23-24. (CANCELED)

25. (ORIGINAL) The system of claim 21, wherein the access device allows a user to adjust the forecasted demand for an employee position.

26. (ORIGINAL) The system of claim 21, wherein the scheduling server is further configured to consider resources availability when creating the initial workforce schedule.

27. (ORIGINAL) The system of claim 21, wherein the scheduling server is further configured to consider a predefined number of work hours per week for an employee when creating the optimized workforce schedule.

28. (ORIGINAL) The system of claim 21, wherein the scheduling server is further configured to consider an employee skill set when creating the optimized workforce schedule.

29. (ORIGINAL) The system of claim 21, wherein the scheduling server is further configured to consider full time and part time employee availability when creating the optimized workforce schedule.

30. (PREVIOUSLY PRESENTED) The system of claim 21, wherein the access device comprises a mouse input device that allows a user to modify an optimized workforce schedule.

31. (PREVIOUSLY PRESENTED) The system of claim 21, wherein the access device comprises a keyboard input device that allows a user to modify an optimized workforce schedule.
32. (ORIGINAL) The system of claim 21, where in the forecasted demand comprises multiple forecasts for a particular position.
33. (ORIGINAL) The system of claim 21, further comprising a report generator configured to provide a color coded report identifying how close the optimized workforce schedule is meeting the forecasted demand for a given position.
34. (ORIGINAL) The system of claim 21, wherein the data storage area is coupled with a data server that is separate from the scheduling server.

Evidence Appendix

None

Related Proceedings Appendix

None